

**MF25, MF32,
MF40, MF50, MF63**

Overtoltage protection for professionals

The **ZUBR MF multifunction relay** (hereinafter referred to as the device) is intended to protect single-phase electrical equipment from deviation from the set limits for voltage, current or power. By using the device, it is possible to limit the power consumption of remote equipment.

IN THE BOX

- Multifunction relay ZUBR MF** 1 piece
- Technical data sheet, installation and operation manual, warranty card** 1 piece
- The packing box** 1 piece

TECHNICAL DATA

Model	MF25	MF32	MF40	MF50	MF63
Rated load current (for category AC-1)	25 A	32 A	40 A	50 A	63 A
Maximum load current in 10 minutes (for category AC-1)	30 A	40 A	50 A	60 A	80 A
Rated power (for category AC-1)	5 500 VA	7 000 VA	8 800 VA	11 000 VA	13 900 VA
Basic current limit	0,1–25 A	0,1–32 A	0,1–40 A	0,1–50 A	0,1–63 A
Limitation of active power	0,1–5,5 kW	0,1–7 kW	0,1–8,8 kW	0,1–11 kW	0,1–13,9 kW
The number of operating cycles under load of	not less 100 000 cycles		not less 10 000 cycles		
The number of operating cycles without load of	not less 1000000 cycles		not less 500 000 cycles		
Relay type	electromagnetic		polarized		
Current measurement accuracy					± 0,1 A
Voltage limit			upper 220–280 V	lower 120–210 V	
Power Volt			not less than 100 V	not more than 420 V	
Overtoltage trip time			> 264 V — 0,04 sec	220–264 V — 0,5 sec	
Time of switching-off when voltage is lowered	176–210 V — 10 sec	154–176 V — 0,5 sec	< 154 V — 0,04 sec		
Time delay of the load disconnection when a current is tripped or power is exceeded					0–240 sec
Device weight					0,21 kg ±10 %
Overall dimensions					66 x 85 x 53 mm
Connection					not more than 16 mm
IP to GOST 14254					IP20

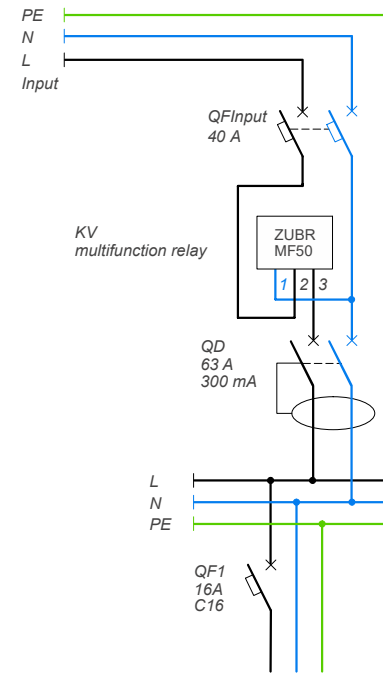
IMPORTANT. Before the installation and operation of the device, please read by the end of this document. This will help to avoid possible danger, mistakes and misunderstandings.

THE DEVICE MEASURES ONLY THE ACTIVE POWER. The total power consists of active and reactive powers and can be calculated by multiplying the voltage by the current.

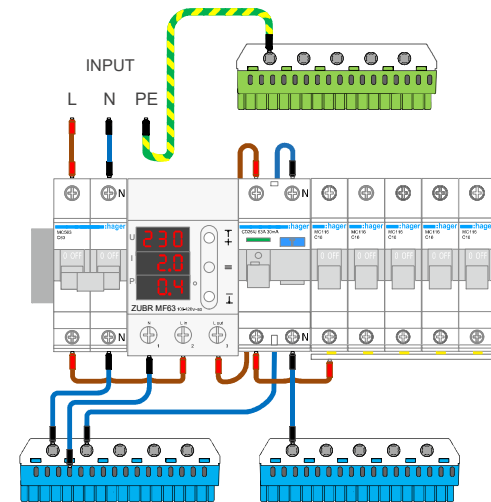
CONNECTION SCHEMES

The supply voltage (100–420 V, 50 Hz) in which current and power will be monitored is applied to terminals 1 and 2, with the phase (L) determined by the indicator and connected to terminal 2, and neutral (N) to terminal 1.

The connecting voltage wires connected to terminal 3 and neutral terminal block (not included).



Scheme 1. Option of wiring diagram



Scheme 2. Option of the connection diagram

IF A NEUTRAL TERMINAL IS NOT USED TO CONNECT A NEUTRAL WIRE TO THE DEVICE, the connection of the mains neutral wire to the load neutral in terminal 1 of the device is allowed only if it is crimped in the sleeve.

INSTALLATION

The appliance is intended for installation inside residences. The risk of moisture or humidity in the installation site should be minimal. The ambient temperature during installation should be within –5...+45 °C.

The appliance is installed in a special box, which allows to conduct the easy installation and operation. Cabinet should be equipped with standard mounting rail 35mm width (DIN rail). The appliance takes in width of 3 standard module on 18 mm. The height of the appliance should be in the range 0,5...1,7 m from the floor. The appliance is installed and activated after installation and inspection of the voltage.

For protection against short circuit and excess capacity in circuit load necessarily need to set in front of the appliance, the automatic circuit-breaker, QF (Scheme 1). To protect person from electric shock leak is set safety shutdown device (QD).

Terminals of the device designed for wire cross section up to 16 mm². Clean the end wires of 10 ±0,5 mm. It is inadvisable to use a soft wire, which is tightened in the terminals with a screwdriver with a tip width of no more than 6 mm with a torque of 2,4 N·m. A screwdriver with a blade more than 6 mm wide can cause mechanical damage to the terminals. Doing so will void your warranty claim.

WARRANTY TERMS

The warranty for ZUBR devices is valid for **60 months** from the date of sale, provided that the instructions are followed. The warranty period for products without a warranty certificate is counted from the date of production.

If your device is not working properly, we recommend that you first read the section «Possible problems». If you cannot find an answer, contact Service Center. In most cases, these actions resolve all issues.

If you continue to have issues with the device, please send it to a Service Center or to the store where you purchased the device. If your device is defective due to our fault, we will repair or replace it under warranty within 14 business days.

Please see the full text of the warranty and the data you need to send to your Service Center on the website <https://www.ds-electronics.com.ua/en/>. If you have a warranty case, please, contact the General distributor in your area.



SERVICE CENTER CONTACT:
+38 (091) 481-91-81
Viber WhatsApp Telegram
support@dse.com.ua

WARRANTY CARD

serial №: _____ date of sale: _____

a seller, a seal: _____ place of a seal _____

an owner contact for a service center: _____

EXPLOITATION

After switching on, the relay immediately starts to display the mains voltage. If the voltage is within the permissible limits, the load is switched on after the set time. The screens will flash over last 3 seconds before switching on the load. The green indicator signals about the activation of the load. The values of the current and the active load power will appear on the corresponding screens.

If the voltage deviates from the set limits, the load will be disconnected. If the current or power limits are exceeded, the corresponding screen will flash, and protection will be activated after the load has been disconnected. The relay will turn off the load.

All settings are stored in NON-VOLATILE MEMORY.

When setting the voltage limits USE THE PROTECTED EQUIPMENT TECHNICAL DOCUMENTATION.

Setting voltage tipping point (factory setting 242 V / 198 V)

To view the upper limit, press the «+» button, to view the lower limit, press the «-» button. Then use the «+» and «-» buttons to change the limit as necessary.

Delay in the load starting after a failure (control is described in table 1)

After a voltage jump before the countdown for 1,5 seconds, and emergency situation will be displayed, then for 1,5 seconds the values of the mains voltage, the current and the active load power.

220
12
SECC

If the set delay time is more than 6 seconds during the countdown, the current screen will display the remaining time before the load is switched on, the power screen will signal that the relay is in the countdown. The voltage screen is the active voltage during the countdown.

FOR PROTECTION OF REFRIGERATION EQUIPMENT, where there is a compressor, it is recommended to set a delay of turning on load 120–180 sec. It will allow to increase the service life of the compressor.









Viewing of firmware version

Hold the button «≡» for 8 sec. The rated current of your MF relay will be displayed on the current screen. The manufacturer reserves the right to modify the firmware to enhance the device technical characteristics.

Reset to factory settings

Hold three buttons for 8 seconds till the «dEF» sign appears on the screen. After releasing the buttons the device will restart and reset the settings to the factory settings.

Use the «≡» button to navigate through the menu (table 1). Use the «+» and «-» buttons to change the parameters. After pressing the button for the first time the parameter will flash, after pressing it for the second time the parameter will change. 3 seconds after the last pressing of the buttons or by briefly pressing the middle button, the relay will return to normal operation.

Table 1. FUNCTION MENU	Press «≡»	
Recent fault voltages, current and active power To view. The value is stored in non-volatile memory	1 time	
Current tripping point (factory setting 10 A, step 0,1 A) Together with the current limit, set an equivalent active power limit.	2 times	
Active power tripping point (factory setting 3 kW, step 0,1 kW) Together with the active power limit, set an equivalent current limit.	3 times	
Delay in the load starting after a failure (factory setting 3 s., a range of change 3–600 s., step 3 s.)	4 times	
Time delay of the load disconnection when a current is tripped or power is exceeded (factory setting 5 s., step 1 s., a range of change 0–240 s.)	5 times	
Setting the maximum number of protection trips when a current is tripped or power is exceeded (factory setting 3 times, a range of change 1–5 times or OFF)	6 times	
Correction of voltage (factory setting 0 V, a range of change ±20 V) You can use correction if voltage indications on the screen of the device and your reference device differ.	hold the button for 3 sec.	
Correction of current (factory setting 0 A, a range of change ±20 % of the measured current*) *Example: with a measured current of 10 A, the maximum correction range is ±2 A	after viewing the voltage correction, press 1 time if the measured current is more than 1 A	

POSSIBLE PROBLEMS, CAUSES AND WAYS TO OVERCOME THEM

On the screen normal voltage level, but load is not turning on

Possible cause: the current voltage in the network is close to the established limits and not stable.

It is necessary to: check the values of the limits; increase their values so that the protected equipment is tolerated to them. In other cases, please, address to a service centre.

At turning on neither indicator nor screendo not shine

Possible cause: there is no power supply voltage.

It is necessary to: ensure supply voltage presence.

The load is disabled, «oht» flashes on the screen

oht
85
C

The temperature inside the housing exceeded 80 °C and triggered protection against internal overheating. The voltage screen is flashing «oht» once for 1 second, the current screen is displaying the temperature of the protection sensor, and the power screen is displaying the temperature in Celsius.

Cause: inner overheating of the device to which can lead: bad contact in the terminals of the device, high ambient temperature, overwhelming power output or incorrectly selected cross-section of wires for connecting.

It is necessary to: check tension of power wires in the device terminals, make sure that the switching load does not exceed the permissible and that the cross section of the wires is selected correctly.

Feature of protection against internal overheating: the device will be unlocked in case if the temperature inside will decrease to 60 °C (the «oht» stops flashing) and one of the buttons is pressed.

Ert

Every 5 sec the screen displays «Ert»

Cause: open or short circuit of the internal overheating sensor. Control over inner overheating will not be done.

It is necessary to: send the device to the Service Center. Otherwise, control over inner overheating will not be done.

The load is disabled, the screen displays «Err»

Err

Cause: the triggered overcurrent protection or the active power protection in succession exceeded the set value. The relay is blocked.

It is necessary to:

- make sure that the current and active power trip limits are set correctly;
- if necessary, increase the current and active power pickup limits according to the requirements of the connected load, if this does not contradict the wiring section;
- make sure that the required trip limit is set for both current and active power;
- unlock the relay by pressing any button.

SAFETY INSTRUCTIONS

Carefully read and become aware of yourself these instructions.

Connection of the device must be done by a qualified electrician.

Before the installation (dismantling) and connection (disconnection) of the device, turn off voltage supply and also act according to the «Rules of an arrangement of electric installations».

Turning on and off or and configure the device should be with dry hands.

Do not connect the device to the network disassembled.

Avoid hitting of water or moisture to the device.

Do not expose the device to extreme temperatures (higher than 40 °C or below –5 °C) and high humidity.

Never clean the device with the use of chemicals such as benzene, solvents.

Do not store the device and do not use it in areas with the dust.

Do not attempt to disassemble and repair the device.

Do not exceed the landmarks value adaptor and power.

To protect against overvoltage caused by lightning discharges, use a lightning protector.

Protect the children from games with the working device, it is dangerous.

ADDITIONAL INFORMATION

Do not fire and do not throw away the device with the household waste.

After the end of its service life, the product must be disposed of in accordance with applicable law.

Transportation of goods carried in the package, ensuring the safety of the product.

The device is transported by any kind of transport (rail, sea, motor, air transportation).

Date of manufacture is on the back side of device. Application time is unlimited.

The device does not contain harmful substances.

If you have any questions or you something will not clear, call the Service centre the telephone number listed below.

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PF334



Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU

Manufacturer and vendor: DS ELECTRONICS, LTD
04136, Ukraine, Kyiv region, Kyiv, 1–3 Pivnichno-Syretska str.
+38 (091) 481-91-81, Service Center: +38 (091) 481-91-81
support@dse.com.ua www.ds-electronics.com.ua/en/